

AUDIT II

Country Report GERMANY

(Draft Version)

Michael Sattler Final Report 13.12.2002



SUMMARY OF ENERGY AUDITING

Energy Policy of the Federal Republic of Germany

Since the beginning of the 1990s the federal government policy has given increased emphasis to global warming issues and the target was set of reducing CO₂ emissions by 25 % before 2005, compared to 1990 levels. The main policy targets are an efficient and environmentally harmless energy supply, increased use of renewable energy sources and a more efficient use of energy in industrial, commercial and private sectors. Essential boundary conditions are economic sustainability and safety of energy supply.

The German federal government's energy conservation policy is basically market-oriented. Framework conditions created by the federal government are supposed to support the market-economy process, e.g. by information and advice measures, financial incentives, and legal measures (such as the new eco-tax on energy consumption). In addition, the federal government makes use of voluntary self-commitments of the industry where appropriate.

Subsequently, the federal energy policy includes promotion programmes for a more rational use of energy, an increased use of renewable energy sources, R&D of new materials, innovation, rehabilitation, physical improvement, investment support, economical and regional development, environmental information dissemination and advising activities. The programmes are tailored for special target groups, in most cases for housing, service or industrial sectors, where the SME-companies have a special emphasis. Terms of the programmes vary from three to five years, but those can be continued if the programmes are found effective.

Energy auditing is generally considered in Germany as energy advising or energy consultancy serviced by qualified experts. The federal state, the states and municipalities promote to use external energy experts in improvements of energy efficiency, if in-house resources are not adequate. An energy auditing procedure is standardised by the Federation of German Engineers, VDI, in a direction "VDI-Richtlinie 3922 Energieberatung" and applied generally as an element in various energy efficiency improvement programmes.

Energy auditing concept as stand-alone activity is being executed by large German companies on their own, most often by in-house resources. As regards SME's, which most often lack in-house resources for energy auditing, the federal government supports energy audits by financing up to 40 % of the costs of an externally delivered audit (max. 1600 euro). However, energy audits are most often being carried out by companies when taking part in the so-called eco-audit system based on the EU-ordinance on eco-audit of June 29, 1993.

Energy Policies of the States

The Federal Germany consists of 16 states, which have constitutionally guaranteed extensive rights of self-government. The states follow federal energy policy or carry out their own energy policies. States' energy policies include typically programmes for renewable energy sources, rational use of energy, environmental, municipal energy conservation, economical promotion, training, information dissemination etc.

Regional and Municipal Energy Saving Activities

Large cities and regions may have their own concepts for energy saving and information dissemination etc. activities. Often these comprise of municipal energy management and energy contracting services. Energy auditing is typically related to these procedures.

Energy Audit Programmes

The Federal Energy Conservation Programme "Energiesparberatung vor Ort"

The Federal Ministry of Economics (BMWi) launched in 1991 an energy saving promotion programme called "Vor-Ort-Beratung", as a part of national policy to reduce CO₂ emissions. The programme has been running since 1991 and is considered very effective, especially in rehabilitation of old buildings. A resolution to continue the programme was made in 1998.

The programme gives subsidies for the following audit phases carried out by qualified engineers. Phase 1: Present situation, Phase 2: Documentation and proposals for energy efficiency enhancements, Phase 3: Personal advice by engineers at the time when documentation are handed over. Credit banks give low interest loans for investments recommended in the audits.

Goals of the programme are to improve thermal insulation and heating systems, by promoting energy certification and other energy saving measures in new and existing buildings built before 1984 in old States and 1989 in new states respectively, and to increase energy saving awareness among building owners and end users. The goals are pursued by technical and financial aid provided by numerous local actors. The programme gives financial support to building owners to procure energy audit consultancy. Eligible to get support from the "Vor-Ort-Beratung" programme are in principle all building owners, provided that the whole building will be audited. Flat owners also have to include a formal audit of heating systems and structural conditions of the building in the consultancy.

Several states and credit banks have additional programmes for financing investments recommended in the audits. The programme is extended to SME's and religious buildings. If they are used for residential purposes, maximum support for energy audit made by consultants is limited according to building size counted in flats per building. The range of the maximum support varies from 325 euro for single family houses to 450 euro for apartments of 61-120 flats. The coincident cost of an energy audit is from 425 euro to 1600 euro.

The consultants shall have adequate professional experience on energy auditing and proven skills to carry out reliably the defined "Vor-Ort-Beratung" tasks. The information and advising agent of the programme is Bundesamt für Wirtschaft (BAW) in Eschborn. The energy audit services are authorised to engineers and consulting companies around the nation. The RKW e.V. (Rationalisierungs Kuratorium der Deutschen Wirtschaft) carries out a qualification and maintains a list of authorised agencies and companies per regions.

The federal "Vor-Ort-Beratung" programme covers all states and a few states have established their own "Vor-Ort-Beratung" programmes such as the "Gebäudecheck Energie" by the State of Northrhine-Westphalia. As the programmes are diversified, very little collective information on results, total volumes of audited buildings and implemented energy saving measures is available.

The effectiveness of energy efficiency improvement measures made trough the "Vor-Ort-Beratung" and other similar activities can be seen from the development of fuel consumption of the old states since the energy crisis of 1973. The influence of a single programme cannot be identified.

Other Programmes with Energy Audits

Municipal energy improvement programmes and energy contracting programmes apply commonly energy auditing in various steps. The first phase of standardised energy audit, Present Situation, is widely used to clarify actual status of the building and technical systems, operational routines and occurred energy consumption and costs. Energy auditors may be used also in later stages to generate new ideas for improvements and to teach how site inspections are carried out in practice. Design tasks, cost estimates, economic calculations and implementation plans are often also ordered from the same engineering offices.

Other Activities including Energy Audits

Commercial energy audit and more comprehensive energy analyses are available from several specialised consulting firms around the country.

Energy Audit Programmes in Germany

Examples of audit programmes and activities on Federal, State and Municipal levels

Energy Audit Programme

Other Programme related to Energy Auditing

Other Activity related to Energy Auditing

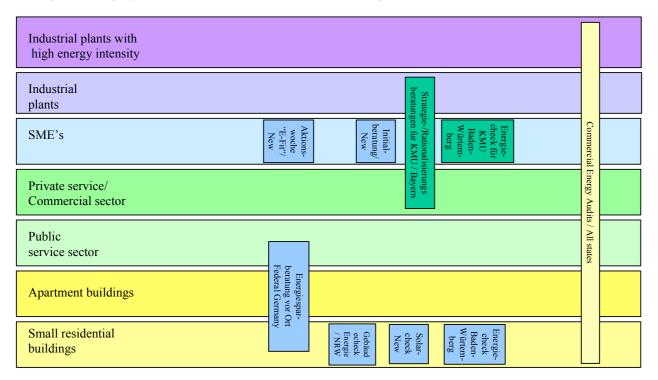


Table of EAP features coverage

	Energiesparberatung vor Ort	
Status	1991-	
Administration	Bundesamt für Wirtschaft und Ausfuhrkontrolle	
EA models	++	
Auditors' tools	+	
Training, authorisation	+	
Quality control		
Monitoring	+	
Volumes, results	+	
Evaluation		

+++ = Detailed information available ++ = Some information available + = Very little information available

= No information available / does not exist

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Country Report

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Disclaimer

The information contained in this report has been gathered from publicly available sources and through interviews. All efforts have been made to secure the veracity of the report, however the authors cannot guarantee the content.

Table of Content

1.	Backg	round and present national policy	1
	1.1 Prev	vious Activities	1
	1.2 Pres	ent National Policy	1
	1.2.1	Federal Energy Policy	1
	1.2.2	Energy Policies of the States	
	1.2.3	Regional and Municipal Energy Saving Activities	2
	1.3 Intro	oduction of energy auditing in Germany	2
2.	Energ	y Audit Programmes	3
	2.1 Fed	eral Energy Conservation Program "Energiesparberatung vor Ort"	3
	2.1.1	Program Goals	
	2.1.2	Target Sectors	3
	2.1.3	Administration	3
	2.1.4	Implementing Instruments	4
	2.1.5	Energy Audit Models	
	2.1.6	Training and Authorisation of Auditors	6
	2.1.7	Monitoring	
	2.1.8	Auditing Volumes	
	2.1.9	Results and Evaluation	
		mples of regional energy auditing programmes ("Länder")	7
	2.2.1	Nordrhein-Westfalen: Initial consulting ("Initialberatung")	
	2.2.2	Nordrhein-Westfalen: Energy check in Buildings ("Gebäudecheck Energie")	
	2.2.3	Nordrhein-Westfalen: Solar check in buildings ("Solar-Check NRW")	
	2.2.4	Nordrhein-Westfalen: energy saving week "e-fit" ("Aktionswoche E-Fit")	
	2.2.5	Baden-Württemberg: Energy check for Residential Buildings ("Energiesparcheck")	8
3.	Other	Programmes Related to Energy Auditing	9
	3.1 Reg	ional ("Länder") and municipal energy management programmes	9
	3.1.1	Bavaria (Bayern): Strategic and rationalising audits for SMEs	9
	3.1.2	Baden-Württemberg: Energy check for SME	
4.	Other	Activities Related to Energy Auditing	10
		nmercial energy audits	
		rgy Audit Model "Energie Beratung" in project management	
	4.3 Fut		10

COUNTRY REPORT

1. Background and present national policy

1.1 Previous Activities

Energy auditing is generally considered in Germany as energy advising or energy consultancy serviced by qualified experts. The federal state, the states and municipalities promote to use external energy experts in improvements of energy efficiency, if in-house resources are not adequate. An energy auditing procedure is standardised by the Federation of German Engineers, VDI, in a direction "VDI-Richtlinie 3922 Energieberatung" and applied generally as an element in various energy efficiency improvement programmes.

Large German companies on their own are executing energy auditing concept as stand-alone activity, most often by in-house resources. As regards SME's, which most often lack in-house resources for energy auditing, the federal government supports energy audits by financing up to 40 % of the costs of an externally delivered audit (max. 1600 euro). However, companies are most often carrying out energy audits when taking part in the so-called eco-audit system based on the EU-ordinance on eco-audit of June 29, 1993

1.2 Present National Policy

1.2.1 Federal Energy Policy

Since the beginning of the 1990s the federal government policy has given increased emphasis to global warming issues and the target was set of reducing CO₂ emissions by 25 % before 2005, compared to 1990 levels. In addition to this unilateral commitment in the framework of the Kyoto protocol, Germany has been obliged to reduce greenhouse gas emissions by 21% in the time span of 2008-2012. The main policy targets are an efficient and environmentally harmless energy supply, increased use of renewable energy sources and a more efficient use of energy in industrial, commercial and private sectors. Essential boundary conditions are economic sustainability and safety of energy supply.

The German federal government's energy conservation policy is basically market-oriented. Framework conditions created by the federal government are supposed to support the market-economy process, e.g. by information and advice measures, financial incentives and legal measures (such as the new eco-tax on energy consumption). In addition, the federal government makes use of voluntary self-commitments of the industry where appropriate.

Subsequently, the federal energy policy includes promotion programmes for a more rational use of energy, an increased use of renewable energy sources, R&D of new materials, innovation, rehabilitation, physical improvement, investment support, economical and regional development, environmental information dissemination and advising activities. The programmes are tailored for special target groups, in most cases for housing, service or industrial sectors, where the SME-companies have a special emphasis. Terms of the programmes vary from three to five years, but those can be continued if the programmes are found effective.

1.2.2 Energy Policies of the States

The Federal Germany consists of 16 states, which have constitutionally guaranteed extensive rights of self-government. The states follow federal energy policy or carry out their own energy policies. States' energy policies include typically programmes for renewable energy sources, rational use of energy, environmental, municipal energy conservation, economical promotion, training, information dissemination etc.

1.2.3 Regional and Municipal Energy Saving Activities

Large cities and regions may have their own concepts for energy saving and information dissemination etc. activities. Often these comprise of municipal energy management and energy contracting services. Energy auditing is typically related to these procedures.

1.3 Introduction of energy auditing in Germany

Energy auditing is generally considered as a part of energy advising. Energy auditing activities are called in German language as "Energieberatung" and defined quite exactly in a norm "VDI (Association of German Engineers) Richlinien 3922 Energieberatungen". The norm divides energy auditing into three phases: 1) Survey of present energy efficiency, 2) Energy Audit Report with improvement proposals and 3) Presentation of results.

Actual energy audit programmes are few and targeted to management and promotion of energy auditing activities as a part of energy efficiency improvement chain. They all include VDI energy audit phases. There are one federal energy audit programme "Energiesparberatug Vor Ort" and several states have their own programmes, e.g. Nordrhein-Westfalen, Hessen, Sachsen, Sachsen-Anhalt and Thüringen. These are described in chapter 2.

Other energy efficiency and advising programmes include also VDI energy audit procedures, but the phases may be modified and applied diversely to support different targets. The first phase "Present Situation" is a widely used component in many programmes, the following phases being less applied. There are several programmes active in Germany, which include essential parts of energy audits, e.g. Brandenburg: Immisionshutz und Begrenzung Energiebedingter Umveltbelastungen, Schleswig-Holstein: Ökötechnik/Ökowirtshaft, Edermünde Municipality (Hess), Frielendorf Municipality (Hess). These samples of other programs including energy audits are described further in Chapter 3.

Some on-going activities, which are not organized as programmes, may also include more or less modified energy audits, for example municipal energy management and monitoring programs. Those activities are described in Chapter 4

2. Energy Audit Programmes

2.1 Federal Energy Conservation Program "Energiesparberatung vor Ort"

2.1.1 Program Goals

Federal Ministry of Economics (BMWI) launched in 1991 an energy conservation promotion program called "*Vor-Ort-Beratung*", as a part of the national policy to reduce CO₂ emissions. Resolutions to continue the program was made in 1998 und 2000. Vor-Ort Energiespar-Beratung is a program, which manages and supports execution of energy audits.

The goals of the program are to reduce CO2-emissions by improving thermal insulation and heating systems, by promoting energy certification and other energy saving measures in new and existing buildings and by increasing energy saving awareness among building owners and end users. The goals are pursued by technical and financial aid provided by abundant local actors.

The program gives financial support to building owners to procure energy audit consultancy in buildings. Energy consultancy for rational use of energy in buildings ("Vor-Ort-Beratung") is an important aid for building owners, who are motivated to put some money for energy conservation and environment protection, especially trough improved heat insulation and renewal of heating system.

2.1.2 Target Sectors

The program is focused to housing sector and covers the whole Germany. Many states have established their own complementary *Vor-Ort-Beratung*-programmes, which may cover also commercial and industrial SME enterprises.

Vor-Ort-Beratung is targeted to support energy inspections and energy audits made by qualified experts in residential buildings built before 1.1.1984 in old states and before 1.1.1989 in new states. In some states the program is extended to commercial and industrial SME's and religious buildings. *Vor-Ort-Beratung* is focused on heat insulation and heating systems of buildings, and cover also use of renewable energy sources. Several states and credit banks have additional programs for financing investments recommended in the audits.

Eligible to get support from the *Vor-Ort-Beratung* program are in principle all building and flat owners, provided that the whole building will be audited. Flat owners only, if the can include also a formal auditing of heating systems and structural conditions of the building in the consultancy. The applicants may be either natural or legal persons. Qualified are also companies, whose annual

turnover is below 20,4 million EUR/a or balance is below 13,8 million EUR and agricultural farms, whose balance is respectively below 1 million. Also all of religious, public utility and charity organisations are eligible.

Non-eligible are all objects, which have received support from the program during last eight years.

2.1.3 Administration

The information and advising agent of the "Vor-Ort-Beratung"-program is Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA) in Eschborn (NRW). The energy consultancy is authorised to named engineers and consulting companies around the nation. Each state and

municipality carries out their own qualification and maintains lists of authorised agencies and companies.

2.1.4 Implementing Instruments

The "Vor-Ort-Beratung" program is a voluntary scheme. To help implementing, it is accompanied by subsidies. Maximal support for energy audit made by consultants is limited according to building size counted by flats per building. Range of maximum support is from 460 EUR for single-family house to 818 EUR for apartments of 61-120 flats. Respective energy audit labour costs are expected to vary from 486 EUR to 2045 EUR.

The federal government supports the "Vor-Ort-Beratung" program. Cost of the energy consultancy (Energiespar-Beratung) is partially subsided by Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA). The support depends on the complexity of the object, according to the following table:

Type	Number of flats	Max eligible cost (VAT excluded)	National support EUR
(1)	(2)	(3)	(4)
A	Detached/ semidetached	434,5	332
В	3-6	613,5	358
С	7-15	869	750
D	16-30	1125	409
Е	31-60	1380	435
F	61-120	1636	460

Notes:

Building owner's share of cost is the difference of the actual cost and national support.

Building owner is responsible for expenses above the maximum eligible cost.

When actual costs are less than the maximum eligible cost, the share of national support will be reduced proportionally.

VAT shall be included in the auditor's bill in full.

Mandatory / legal schemes	Voluntary schemes
Not linked to mandatory schemes.	The "Vor-Ort-Beratung" program is a voluntary scheme
Fiscal incentives (taxes)	Fiscal incentives (subsidies)
No link with the tax system.	Subsidies granted by the Bundesamt für Wirtschaft und Ausfuhrkontrolle.
Marketing oriented schemes	Policy issues
No special promotional instruments.	Energy audits are mentioned in the German Climate Strategy.

2.1.5 Energy Audit Models

The *Vor-Ort-Beratung* program is based on new releases of building codes and standards to improve energy efficiency in new and rehabilitated buildings and the VDI norm 3922 Energieberatung. The program supports energy consultancy studies, including creation of heat balance, energy break downs, identification of high heat loss points and making proposals for improvements in building envelope, heating, electricity and hot water systems. Also operation, maintenance and management of buildings shall be reviewed in the study. Utilising of ventilation heat recovery, controls by demand and renewable energy sources are recommended.

A Federal Notification Nr 117, page 9043, the *Vor-Ort-Beratung* directive makes public the mainframes for the energy audit program, intended for use in all states.

The *Vor-Ort-Beratung* -audit has the following three phases:

Phase I: Survey of present energy efficiency

The auditor shall inspect and appraise the building and heating systems, in order to detect and list all energetic weaknesses.

First the auditor shall collect basic data, i.e. building type, year of construction, number of flats and heated area.

Second task is to inspect of thermal insulation and areas of external walls, roofs, windows, external walls of warm cellars, attic rooms and interior walls against unheated spaces and visible cold bridges (balcony floor plates, roller shutter penetrations, radiator recesses, building corners). These thermal parameters of the building envelope are essential to know for the accurate heat demand calculations. The energy balance by areas is the base for evaluation of effects by different saving measures.

Third task is to divide the building volume to accurate room volumes for ventilation heat requirement calculations.

Finally the auditor shall inspect the present condition of the heating systems. This includes basic information (type, nominal capacity of equipment etc.), heat production data (at least equally to the Chimney Cleaning Protocol), reliable readings of past energy/fuel consumption and condition of chimneys and heat distribution network.

Phase 2: Energy Audit Report

After the present situation analyses the auditor shall prepare an audit report, which include the following chapters:

Basic information about the audited building

Energy efficiency status of the building and its heating systems

Low efficiency areas and points

Domestic hot water supply systems

Proposals for energy saving measures (minimum two, cost estimates included, eventually self-made)

Possibilities to utilise renewable energy sources

Comparison of new energy consumption, when all proposed measures are completed with the original energy consumption

Comparison emissions (mainly CO₂ and NOx) before and after the saving measures

Economic key figures of the proposed measures that the auditor can revise them later by new cost data

- Table form variance analysis of main input variables
- Summary of major data and results in easy to understand form

The audit report shall be independent on suppliers and all proposed measures to be based on known technologies.

Phase 3: Presentation of Results

The auditor has contractual responsibility to present the audit report verbally to the building owner. Especially the proposed energy saving measures shall be discussed in details. The auditor shall also give tips, how the owner can apply the best economical solutions. The auditor shall report to the programme administrator names of the persons in the discussion. Also the building owner shall be served by answering all questions and supplying more information on request, e.g. about energy saving measures.

Norm basis for energy audits in Germany

Federation of German Engineers, VDI, publishes norms and directions for common use in many subjects. The direction "VDI-Richlinie 3922, Energieberatung" gives guidelines for energy consultancy tasks, resembling to energy auditing procedures e.g. in Finland.

In some areas, e.g. State of Hessen, a corresponding Swiss direction "Schweitzer Richlinien SIA 380" is used as basis for energy auditing.

2.1.6 Training and Authorisation of Auditors

The Vor-Ort-Beratung program directs subsidy to energy audits made by qualified consultants. The consultants shall have adequate professional experience on energy auditing and proven skills to carry out reliably the defined Vor-Ort-Beratung tasks.

Names of engineers, who are approved to conduct Vor-Ort-Beratung consultancy are listed by regions and available from Deutschen Wirtschaft (RKW) in Eschborn, from Bund der Energieverbraucher e.V., Rhreinbreitbach and from Internet (http://www.bafa.de/ener/aufgaben/ener_spa.htm). Rationalisierungs Kuratorium der Deutschen Wirtschaft offers professional qualification and maintains a list of authorized energy agencies and companies.

2.1.7 Monitoring

Results from individual projects are not collected systematically, but impacts on federal and state levels are recognised. However, effects of individual programs on energy efficiency or total energy consultation cannot be quantified.

2.1.8 Auditing Volumes

Number of completed building projects, improved floor areas and total public funding are compiled variably in statistics. Federal level summaries on audited volumes are not available.

2.1.9 Results and Evaluation

The effectiveness of energy efficiency improvement measures made trough the Vor-Ort-Beratung and other similar activities can be seen from the development of fuel consumption of the old states since the energy crisis of 1973. The influence of a single program cannot be identified.

2.2 Examples of regional energy auditing programmes ("Länder")

2.2.1 Nordrhein-Westfalen: Initial consulting ("Initialberatung")

This service is offered by the state energy agency Energieagentur NRW, an organisation funded by the federal state of North-Rhine Westfalia. Consulting services are offered to SME's and SMC's over the phone and through an initial meeting and auditing. Informations are given about technologies, subsidies and possible measures that have been determined upon initial visit. The client receives a short report containing these information and addresses of companies for further services.

Support

Initial consulting by EA-NRW is provided at no cost.

Administration and Operating Agent

Ministerium für Wirtschaft, Mittelstand, Energie und Verkehr des Landes NRW, Energieagentur NRW

Target Group

SME, SMC, churches, associations

2.2.2 Nordrhein-Westfalen: Energy check in Buildings ("Gebäudecheck Energie")

Short Description

This program has been developed by the Energieagentur NRW. The Energieagentur NRW is offering a trainingsprogram for craftsman. After passing this training, they are able o check small residential buildings. The result of the Energy check is a report and a catalogue of measures, together with rough cost and effects of the measures.

Support

Maximum support 52 €/Energy check – total amount Cost per Energy check.77 €; Customer 25 € per Energy check

Target Groups

Owner of small residential building (not more than 6 dwellings and build before 1980)

Administration and Operating Agent

Ministerium für Städtebau und Wohnen, Kultur und Sport des Landes NRW, Energieagentur NRW, Westdeutscher Handwerkskammertag

2.2.3 Nordrhein-Westfalen: Solar check in buildings ("Solar-Check NRW")

Short Description

This program has been developed by the Energieagentur NRW. The Energieagentur NRW is offering a trainingsprogram for craftsman. After passing this training, they are able o check small residential buildings. The result of the Solar check is a report and individual recommendations for the usage of solar energy, together with expected costs and effects of measures.

Support

Maximum support 52 €/Energy check – total amount Cost per Energy check.77 €; Customer 25 € / Energy check

Target Groups

Owner of small residential building (not more than 6 dwellings)

Administration and Operating Agent

Ministerium für Städtebau und Wohnen, Kultur und Sport des Landes NRW, Energieagentur NRW, Westdeutscher Handwerkskammertag

2.2.4 Nordrhein-Westfalen: energy saving week "e-fit" ("Aktionswoche E-Fit")

Short Description

This project of the Energieagentur NRW is offered to SME's and SMC's in North-Rhine-Westfalia. The central goal of this initiative is to save electric energy in administration buildings by means of changing the employees behaviour with regard to using electric and electronic devices. The basic message people learn is that saving energy and comfort do not exclude each other. In various ways, the employees are motivated to proof their habits in using PC's and other devices. At the begin and the end of the energy saving week the electric consumption of the building is measured. The results of these audits are used to demonstrate which energy savings could be earned only through changing the personal way of energy use.

Target Groups

SME's and SMC's with at least 100 employees

Administration and Operating Agent

Ministerium für Wirtschaft und Mittelstand, Energie und Verkehr des Landes NRW, Energieagentur NRW, Impuls-Programm RAVEL NRW

2.2.5 Baden-Württemberg: Energy check for Residential Buildings ("Energiesparcheck")

Short Description

Programme developed by Handwerkstag Baden-Württemberg under financial support of the Federal Ministry for Environment in Stuttgart. Key tool is a software package "ENERGY CHECK" which allows the user (craftsmen trained specifically for its use) to produce a standardized energy check for existing dwelling buildings. Potential clients (home owners) have to contribute an audit fee of \in 75,-- (and additional \in 25,-- for every further flat in multi family buildings). The audit is made on site and results in an energy pass an a detailed advisory report, both created with software. Such a check is the precondition for further support for retrofit measures.

Support

The total cost per Energy Check is calculated to be € 35,-- for single family houses. The support corresponds thus to 80% of the cost.

Target Group

Owner of small residential buildings (not more than 8 dwellings)

Operating Agent

Handwerkstag Baden-Württemberg, Stuttgart, Stukkateurs-Innung

Administration

Ministerium für Umwelt und verkehr, Baden-Württemberg

3. Other Programmes Related to Energy Auditing

3.1 Regional ("Länder") and municipal energy management programmes

3.1.1 Bavaria (Bayern): Strategic and rationalising audits for SMEs

Short Description

Support is given to small and medium size enterprises (SME, max 250 employers or 40 Million DM) for stand-alone audits targeted to strategic development and reorganisation of energy use and management. Also energy saving and energy efficiency audits are eligible.

Maximum support is 350 DM per day of external consult works. Additional support is given to EU defined development areas. Up to 40 workdays in one or several stages during four years can be accepted.

Operating Agent

Rationalisierungskuratorium der Deutschen Wirtschaft e.V. (RKW). Landesgruppe Bayern, München.

Target Group

Commercial and industrial SME.

3.1.2 Baden-Württemberg: Energy check for SME

Short Description

Energy check and improvement plan to be carried out by an energy engineering consultant.

Support

The check is supported by € 350,-- per work day (maximum 5 work days). This corresponds to a support of app. 50% of the cost. The consultancy ends with detailed energy balance and advice report.

Target

Commercial and industrial SME

Operating Agent

Klimaschutz- und Energie-Agentur Baden-Württemberg

Administration

Ministerium für Umwelt und Verkehr, Baden-Württemberg

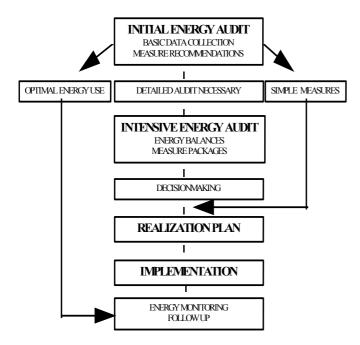
4. Other Activities Related to Energy Auditing

4.1 Commercial energy audits

Commercial energy audits and energy advising services are provided by a large number of consulting firms in all states. Many of these companies or their individual experts have authorisation for federal and states' supported energy audits.

4.2 Energy Audit Model "Energie Beratung" in project management

The VDI-energy auditing model can be applied also as a management tool in energy efficiency implementation projects.



Figure, Energy audit as apart of design process (Energieagentur NRW)

4.3 Future Plans

Many of the state and municipal energy audit programmes will probably continue as the results are considered quire satisfactory and energy ayudit has an essential role in identification of saving opportunities.

The Federal Ministry for Transport, Building and Housing is planning to launch an energy certificate programme called *Energie-Pass*. Its objective is to review energetic condition of buildings and issue certificates on results. This certificate should give a quick overview to house owners of energy consumption and losses of their buildings and motivate them to invest in the energetic renewal where renewable energy sources should play an increasing important role. On the other hand the certificate should give assurance to tenants and potential builders of low energy costs and by that way to raise value of the building.